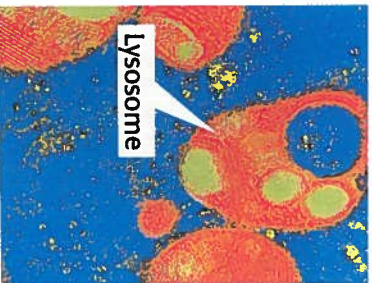


Cellular Digestion

Figure 9 Lysosomes digest materials inside a cell. In plant cells, the large central vacuole stores water.



Lysosomes (LIE suh sohMZ) are vesicles that are responsible for digestion inside a cell. **Lysosomes** are organelles that contain digestive enzymes. They destroy worn-out or damaged organelles, get rid of waste materials, and protect the cell from foreign invaders. Lysosomes, which come in a wide variety of sizes and shapes, are shown in **Figure 9**.









Lysosomes are found mainly in animal cells. When eukaryotic cells engulf particles, they enclose the particles in vesicles. Lysosomes bump into these vesicles and pour enzymes into them. These enzymes digest the particles in the vesicles.

Reading Check Why are lysosomes important?

Vacuoles

A *vacuole* (VAK yoo OH) is a vesicle. In plant and fungal cells, some vacuoles act like lysosomes. They store digestive enzymes and aid in digestion within the cell. The large central vacuole in plant cells stores water and other liquids. Large central vacuoles that are full of water, such as the one in **Figure 9**, help support the cell. Some plants wilt when their large central vacuoles lose water. **Table 1** shows some organelles and their functions.

Table 1 Organelles and Their Functions

 Nucleus the organelle that contains the cell's DNA and is the control center of the cell	 Chloroplast the organelle that uses the energy of sunlight to make food
 Ribosome the organelle in which amino acids are hooked together to make proteins	 Golgi complex the organelle that processes and transports proteins and other materials out of cell
 Endoplasmic reticulum the organelle that makes lipids, breaks down drugs and other substances, and packages proteins for Golgi complex	 Large central vacuole the organelle that stores water and other materials
 Mitochondrion the organelle that breaks down food molecules to make ATP	 Lysosome the organelle that digests food particles, wastes, cell parts, and foreign invaders

SECTION Review

Summary

- Eukaryotic cells have organelles that perform functions that help cells remain alive.
- All cells have a cell membrane. Some cells have a cell wall. Some cells have a cytoskeleton.
- The nucleus of a eukaryotic cell contains the cell's genetic material, DNA.
- Ribosomes are the organelles that make proteins. Ribosomes are not covered by a membrane.
- The endoplasmic reticulum (ER) and the Golgi complex make and process proteins before the proteins are transported to other parts of the cell or out of the cell.
- Mitochondria and chloroplasts are organelles that provide chemical energy for the cell.
- Lysosomes are organelles responsible for digestion within a cell. In plant cells, organelles called *vacuoles* store cell materials and sometimes act like large lysosomes.

Using Key Terms

- In your own words, write a definition for each of the following terms: *ribosome*, *lysosome*, and *cell wall*.

Understanding Key Ideas

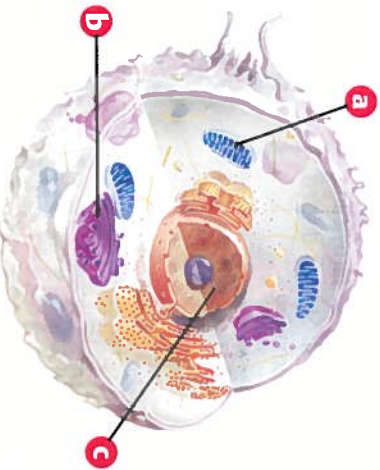
- Which of the following are found mainly in animal cells?
 - mitochondria
 - lysosomes
 - ribosomes
 - Golgi complexes
- What is the function of a Golgi complex? What is the function of the endoplasmic reticulum?

Critical Thinking

- Making Comparisons Describe three ways in which plant cells differ from animal cells.
- Applying Concepts Every cell needs ribosomes. Explain why.
- Predicting Consequences A certain virus attacks the mitochondria in cells. What would happen to a cell if all of its mitochondria were destroyed?
- Expressing Opinions Do you think that having chloroplasts gives plant cells an advantage over animal cells? Support your opinion.

Interpreting Graphics

Use the diagram below to answer the questions that follow.



- Is this a diagram of a plant cell or an animal cell? Explain how you know.
- What organelle does the letter *b* refer to?

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